

NASA Glenn  
Plum Brook Station

TENTH EDITION  
JULY 2004

# Decommissioning NEWS

## Plum Brook Station

A quarterly  
newsletter  
to inform the  
public about NASA's  
Decommissioning  
Activities

### PROJECT UPDATE DECOMMISSIONING PASSES HALFWAY POINT

It's summer, and just as surely as we have passed the midpoint of the year, NASA has surpassed the halfway point of the Decommissioning Project. Measures of progress include the number of containers of loose and fixed equipment removed from Reactor Facility buildings (see chart on page three) and the increasing number of now empty buildings. "We're on schedule on all major activities," reported NASA Decommissioning Project Manager Tim Polich at April's quarterly Community Workgroup meeting.

According to Senior Project Engineer Keith Peacock, NASA has completed both Phase 2 of segmentation work (at the core region of the reactor tank) and Phase 3 (below the core region). The project reached milestones in April and June (twice), with the safe shipment of segmented reactor internals to the Barnwell licensed disposal facility in South Carolina. On each occasion, a truck bearing a cask containing a steel liner filled with segmented reactor components (Class B and C low-level radioactive waste) left Plum Brook Station bound for Barnwell, where it arrived safely the following evening.

By June workers had removed all of the remaining large internal components from the reactor tank. These included a 5,500-pound component assembly, known as the flow guide, which they later segmented and packaged for eventual shipment to Barnwell. When the reactor operated, the flow guide directed water flow in and out of the reactor. They also removed three thermal shields - each weighing at least 12,000 pounds - which had provided shielding between the reactor core and tank wall when the reactor was operational. Noted Polich, "We have now safely removed, packaged and shipped the bulk of the radioactive inventory from the reactor, an important step in ensuring a safe and successful decommissioning."



Workers place cut pieces of piping in a box for removal from the Reactor Building.



A liner filled with segmented reactor internals is lowered into a shipping cask for transport to Barnwell.



Segmentation workers disassemble a work station near the reactor tank.

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### WHAT'S INSIDE

Project Update  
Workgroup  
Member Profile  
Decontamination  
Begins

### Local History Comes Alive NASA to Show Premiere of Documentary Video at Sandusky State Theatre

Even as work on decommissioning the Reactor Facility proceeds, the history of this one of a kind facility will be captured on-screen at the Sandusky State Theatre. On Wednesday, July 14 (7 p.m.), the public is invited to the premiere of "From Ashes to Atoms" a documentary video on the facility. The documentary, narrated by Ohio resident and actor Kate Mulgrew (Captain Janeway of the Star Trek Voyager series) looks at the history of the facility that operated from 1962 to 1973 during the heady days of early space flight. The Reactor Facility - the only one ever built by NASA - once served two purposes: initially conducting basic research into the nuclear propulsion of air and spacecraft, and then conducting tests on the effects of radiation on materials during space flight.

The focus of the documentary is the construction, operation and shutdown of the facility, but Kevin Coleman, History Officer and Archivist at the NASA



Reactor Facility workers retrieve material used in a reactor experiment from a canal in the Hot Lab Building in this early 1960's photo.

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## Other ways to receive Decommissioning INFORMATION

### FACT SHEETS

Since June 1999, NASA has produced fact sheets dealing with various aspects of Decommissioning. Copies are available at public libraries throughout Erie County, at the Community Information Bank at the BGSU Firelands Library, on our Decommissioning Website at [www.grc.nasa.gov/WWW/pbrf](http://www.grc.nasa.gov/WWW/pbrf) and by calling our Information Line at 1-800-260-3838.

### COMMUNITY INFORMATION BANK

NASA has established a Community Information Bank (CIB) at the BGSU Firelands Library. The CIB serves as a permanent repository of information on the Decommissioning Project which NASA continually updates. All information at the CIB is available to the public upon request.

### DECOMMISSIONING WEBSITE

Decommissioning information is available on-line. Visit us at [www.grc.nasa.gov/WWW/pbrf](http://www.grc.nasa.gov/WWW/pbrf)

### SPEAKERS

NASA will provide speakers upon request to civic, community and school organizations throughout Decommissioning. A video or slide presentation may be presented. For further information, contact Sally Harrington through our Information Line at 1-800-260-3838, her direct line at 216-433-2037, or at [s.harrington@grc.nasa.gov](mailto:s.harrington@grc.nasa.gov).

## NASA Begins New Decommissioning Activity: Decontamination of Buildings



A mobile crane is being used for fixed equipment removal in the Primary Pump House (at left of photo), the first building to undergo initial decontamination work.

decontaminated before their demolition. As is true of all phases of the project, NASA will conduct a Job Safety Analysis to evaluate the risks involved with each location, and require a Radiation Work Permit so that worker radiation exposure can be kept to As Low as Reasonably Achievable (ALARA) standards used by industry and government.

NASA planned for the decontamination process as a part of decommissioning because of the millions of pounds of concrete existing in the buildings. Because concrete is a porous material, radioactivity can settle into many tiny cavities, so decontamination must essentially get rid of this material to the level required by the NRC. But Peacock also pointed out that that initial samples taken through the concrete indicate that in many buildings, the contamination may not run much more than a quarter-inch deep.

One decontamination method NASA will employ is called "scabbling." Workers from subcontractor MOTA Corp. will wear protective clothing and respirators, and operate a variety of tools with diamond tips hooked up to machines with powerful vacuum pumps that capture dust and grit - a key to ensuring the particles do not become airborne. In some areas, workers may employ a powerful diamond wire saw to remove blocks of concrete for disposal. NASA will conduct air monitoring throughout the process and, where necessary, employ enclosures like those used in asbestos removal to control or eliminate airborne contamination.



When necessary, NASA will use enclosures such as "glove bags," similar to those being used during asbestos removal, to prevent the release of airborne contamination.

### What It Means To Be Clean NASA Begins Final Status Survey

"It's what we've been working towards all along," states NASA Senior Project Engineer Keith Peacock. "The Final Status Survey is the white glove test showing that we've reached our cleanup goal and our license can be terminated." NASA is preparing an area in one portion of the Reactor Facility, the Primary Pump House, to be ready for the Final Status Survey (FSS). The FSS will demonstrate that by the end of decommissioning, NASA has cleaned up any remaining radioactivity at the site to the Nuclear Regulatory Commission's (NRC) "unrestricted use"

Planning to employ methods ranging from a sticky cloth that you can buy at any store, to workers wearing respirators while operating a variety of tools, NASA has begun another important step in the overall decommissioning process: decontaminating Reactor Facility buildings. According to NASA Senior Project Engineer Keith Peacock, once all the fixed equipment has been removed from the buildings, decontamination is necessary to meet cleanup levels required by the U.S. Nuclear Regulatory Commission (NRC) and allow for termination of NASA's license with the NRC (see article below). He explained that decontamination involves "taking away the dirt, grit, dust and rust" that contains radiation.

NASA will employ several methods depending on cost efficiency and the degree of worker radiation exposure in areas of the Reactor Facility buildings to be decontaminated. NASA has been demolishing all buildings and structures that do not contain basements. What will then remain are seven buildings with basements that must be

### DECONTAMINATION

METHOD	WHAT'S INVOLVED
<b>WIPING</b> (with a sticky cloth)	Picks up very light contamination (loose dirt and dust). These Maslin cloths come in several varieties similar to "The Swiffer" that people can buy in any store.
<b>MOPPING</b> (with soap and water)	Same as above, but because the water must then be treated as radioactive waste, this method will see minimal use. NASA is committed to generating and disposing of as little liquid waste as possible and has its own water treatment system in place during decommissioning. No water from decommissioning will be disposed of in the County sewer system until NASA has sampled it to make sure it is clean and free of contamination.
<b>APPLYING STRIPPABLE COATING</b>	Some lightly contaminated large, flat surfaces, such as some walls, can be cleaned by painting on a coating that can later be stripped away to remove light contamination. This method is unlikely to be heavily utilized.
<b>ACID/CHEMICAL WASH</b>	For piping left in the ground (10 feet below grade), NASA can "wash" the inside of pipes with acid or chemicals, sample them to make sure they are clean, and then fill them with grout.
<b>REMOVAL</b> Can be done by:	
<b>Scabbling</b>	Remove concrete using hand held drills and larger tools supported by powerful vacuum machines with a HEPA (High Efficiency Potential Air) filter system
<b>Disposal</b>	Contaminated material such as ceiling and floor tiles, electrical conduits and piping - and some concrete - will be disposed of as low-level radioactive waste (similar to the equipment that has been packaged and sent to the Envirocare licensed disposal facility).
<b>Excavation</b>	Contaminated soil will be excavated, packaged and sent to Envirocare and clean fill will be used to replace the soil.

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Do you want to know what 's happening? Do you have questions or comments on Decommissioning?  
**CALL OUR INFORMATION LINE AT 1-800-260-3838.**



## FINAL STATUS SURVEY (CONTINUED FROM PAGE 2)

cleanup standard - a strict safety limit that protects human health and the environment. As Peacock explains, "Unrestricted use means the site would be safe for a person to essentially live on the site, eating food grown here and using site groundwater for drinking."

According to Peacock, the first step in the FSS process was to get NRC approval on what's referred to as "our Derived Concentration Guideline Levels (DCGLs)." He says these levels are the requirement for "what individual cleanup levels need to be for each significant isotope that is still present from the Reactor Facility's operation, so that when they are all added together, the total will not exceed the unrestricted use level of 25 millirem per year." He adds that because the FSS is "a comprehensive collection of data showing what we looked for and how we conducted our sampling over the entire site," NASA will "take one building or one parcel of land at a time and survey it out."

The NRC will work closely with NASA, to ensure that each area is at or below the DCGLs. If there is an area above them, Peacock promises, "We'll go back and do more decontamination until we meet those levels," and when that area is clean, "we'll close it up, secure it from future contamination and move on to the next." When NASA completes the FSS in a given secure area, the NRC will conduct an Independent Verification Survey (IVS) to certify that the area has achieved its cleanup goal. ■

## PROJECT UPDATE (CONTINUED FROM PAGE 1)

The following buildings, and the purpose they served when the Reactor Facility was operational, have been the focus of fixed equipment removal operations.

**Reactor Building:** At levels 15 and 25 feet below grade, workers have removed piping systems, including a secondary cooling system, and other equipment.

**Fan House:** All Reactor Facility ventilation equipment operated from this building.

**Waste Handling Building:** Was used for packaging waste materials.

**Reactor Office and Lab:** Adjacent to the Reactor Building, it once housed the offices of several Reactor Facility staff and served as research space for non-nuclear experiments.

**Primary Pump House:** Contained the primary cooling and plumbing system for the Reactor Facility including three pump rooms, an ion exchanger and a heat exchanger. The heat exchanger took hot water from the reactor, cooled it and then sent it back to the reactor in a closed loop cycle.

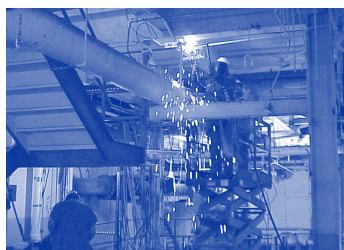
In addition, workers used an industrial torch to cut three shrapnel shields, each weighing 40,000 pounds and formerly used to cover the reactor tank, and packaged them for shipment to the Envirocare licensed facility in Utah. Once the highly radioactive components were removed from the tank, the shields were no longer needed.

From January through June, NASA shipped more than a million pounds of loose and fixed equipment off site. For example, workers removed old plumbing systems, cutting the pipes and packaging them in shipping containers. The pipes and other Class A waste (containing the least amount of radiation) are also being sent to Envirocare. The tonnage of equipment successfully removed includes doors, wires, railings, racks and, added Peacock, "everything but the bare walls. You're talking about a massive amount of equipment."

This summer also marks a shift in how material is shipped offsite for disposal. Up to now, NASA has been sending a few truckloads at a time to the Alaron reprocessing facility in Pennsylvania, where the majority of the waste was transferred to an on-site rail facility and then sent by train to Envirocare. But now, NASA is making use of a railhead in Bellevue. "Instead of making one shipment a day for six days to Alaron," Peacock explained, "The trucks can make six shipments in one day to Bellevue, which will obviously be more efficient." At Bellevue, the containers will immediately be placed on trains bound for Envirocare.

The rest of the summer will be equally busy, with the completion of fixed equipment removal in several areas of the Reactor Facility and continuation of facility characterization and asbestos removal operations. ■

Before and after: In top photo, workers undertaking fixed removal operations in the Reactor Building use a torch to cut pipes and the hangers that supported them. In bottom photo, all the pipes and other equipment have been removed.

COMMUNITY WORKGROUP MEMBER  
PROFILE

## Montez McDuffie

For Montez McDuffie, sharing information with the community is familiar territory. The Cleveland native, principal of Sandusky's Venice Heights Elementary School since 1995, says, "I've worn a

lot of hats," in 24 years with the Sandusky City Schools. These include service as the City Schools' community liaison, principal at the Campbell Elementary School, assistant junior high school principal and elementary school teacher. The Heidelberg College and Ashland University graduate also taught three years in Cleveland and his wife, Mary, has taught for 25 years in the Huron Public Schools.

Montez became a Community Workgroup member in the fall of 2003. He first learned about the Decommissioning Project from articles in the Sandusky Register. Montez says he joined the Workgroup with "an open mind and no expectations," aside from his initial feeling that "the project was being conducted safely...that's just the way I've always seen NASA proceed - doing things the right way and moving cautiously." He views the Workgroup as "providing an opportunity for community input," and says he has answered questions from "eight or ten people in the course of conversations" since becoming a member.

Montez says he has let colleagues and neighbors know that he is a Workgroup member, noting that this sometimes spurs questions, including some about the transportation of low-level radioactive waste. Having reached "a level of comfort" in answering community members' questions - based on the information NASA provides at Workgroup meetings and in related mailings - he says, "I give people a little information on how things are being done and their level of concern drops right away." He says that as a newer member, "I've been trying to get used to all the project terms," but feels the meetings are "very positive" and helpful.

According to the long-time educator, "The way decommissioning is being handled, the general consensus is that NASA is doing what needs to be done - that it's being done safely." He says NASA "blankets the community with information, in the newsletter, and newspaper articles," and in other vehicles such as the Project Information Line, Website, Workgroup meetings and annual Community Information Session. Asked if NASA should do anything more in terms of outreach, he laughs and says, "Not unless they (NASA) give away money or food." Montez will continue serving the community as a Workgroup member, providing information as best he can; but he notes, "As a teacher, I learned never to make up an answer. If there's a question I can't field, I'm going to find out something from the right (NASA) person." ■

## US ON-LINE

You can find our  
Decommissioning Website at  
[www.grc.nasa.gov/WWW/pbrf](http://www.grc.nasa.gov/WWW/pbrf)



## Topics in Upcoming Issue

Look for our bigger and better October edition, which will include a pictorial centerfold showing our progress throughout the year.

## LOCAL HISTORY (CONTINUED FROM PAGE 1)



Keeping watch in the control room, circa 1970.

Glenn Research Center, says folks will also get a glimpse of "NASA's workforce...how they used to operate" while providing research during the space race. According to the documentary's producer/director Jim Polaczynski, a video-imaging specialist with Indyne Inc. (a NASA Glenn contractor), personal history is a big part of the story. He says viewers will learn about the men and women who operated this one of a kind facility, and about the land (and the generations who farmed it) in and around what is now Plum Brook Station. "The workers have been a focus since the start," notes Polaczynski, who began work on the 90-minute documentary in 2001. "But as we looked at the big picture, the land also became part of the story." The documentary traces cycles of land use as family farmland, an Ordnance Facility in World War II and, since 1956, as home to NASA.

The video features several NASA retirees, many of whom still live in Erie County. Coleman, who has provided technical assistance to the documentary - and to a pair of Reactor Facility history books to be published in 2004 and 2006 - observes that these workers had done "something that was never done before... and they still get together" at a monthly breakfast, keeping alive their unique sense of kinship and the spirit of the work they once performed. Many also continue to provide valuable information and advice to the Decommissioning Team. Coleman believes the video and books - including a pictorial book on the Reactor Facility (along with other Plum Brook Station facilities) that will be published this summer - will be of interest to generations of local residents whose families once owned what is now NASA land.

The video follows several retirees on visits back to the Reactor Facility, and to a Plum Brook Station reunion in 2002. For some, it was an emotional experience as they were in the place for the first time since they left in 1973. In all, Polaczynski interviewed nearly 40 retirees, area residents and Decommissioning Team and Community Workgroup members, providing perspective on every stage of the facility's life. He says he is "proud to bring the reactor workers the recognition they deserve." Copies of the video will also be made available to local schools and organizations.

**For further information on the documentary video premiere, call our 24-hour, toll-free Decommissioning Information Line at 1-800-260-3838 or visit our Website at [www.grc.nasa.gov/WWW/pbrf](http://www.grc.nasa.gov/WWW/pbrf). ■**



**NASA Glenn  
Plum Brook Station**

6100 Columbus Avenue  
Sandusky, Ohio 44870

**Next Community Workgroup Meeting**  
**TUESDAY, JULY 13, 7p.m. - 9p.m.**  
Huron Public Library  
333 Williams Street, Huron

The meeting is open to the public